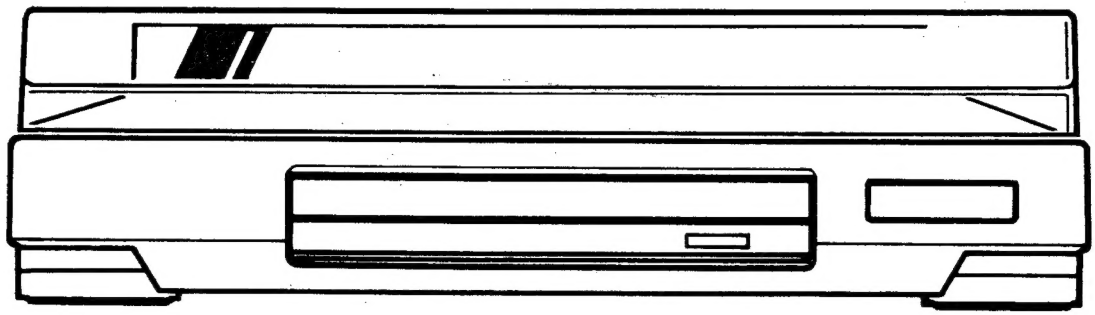
AKAI SERVICE MANUAL



FULL AUTOMATIC PLAYER

MODEL AP-M600

SPECIFICATIONS

Drive system	Belt drive
Motor	DC servo motor
Speed	33-1/3 & 45 rpm
Wow & flutter	0.12 % (wrms)
Rumble (DIN B)	60 dB
Tone arm	Dynamic balance type
Effective arm length	205 mm
Stylus pressure	3.5g (Fixed).
Applicable cartridge weight	5.9 g
Cartridge	MM AT-3606HT type)
Output voltage	2.5 mV
Optimal stylus pressure	3.5gr
Channel balance	2 dB
Channel separation	20 dB (1 kHz)

Power requirements	220 V, 50 Hz for Europe except UK 240 V, 50 Hz for UK and Australia 110 V-120 V/220 V-240 V, 50 Hz/60 Hz Convertible for other countries
Dimensions	360 (W) × 97 (H) × 345 (D) mm (14.2×3.8×13.6inches)
Weight	2.9kg (NET)

Standard accessories

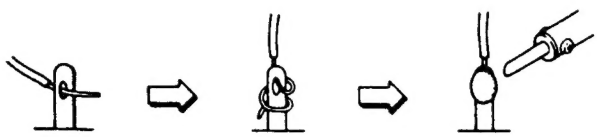
45 rpm adaptor	× 1
Screwdriver	× 1
Operator's manual	× 1

* For improvement purposes, specifications and design are subject to change without notice.

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

★INFORMATION

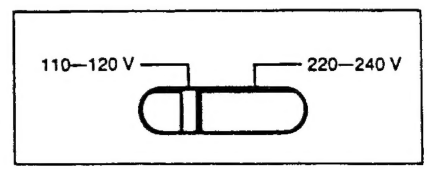
SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

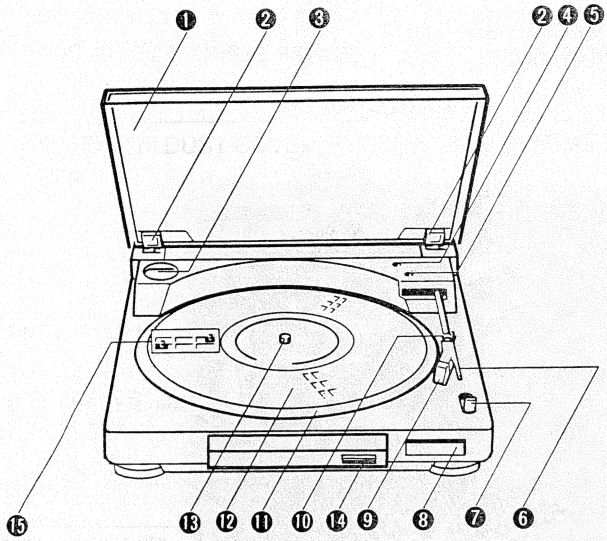
Symbols	Principal Destinations
[A]	USA
[B]	UK
[C]	Canada
[E]	Europe (except UK)
[J]	Japan
[S]	Australia
[V]	W. Germany only
[U]	Universal Area
[Y*]	Custom version

VOLTAGE CONVERSION ([U] Model only)

Before connecting power cord or assembling the platter. Set the VOLTAGE SELECTOR on the top of the cabinet, to correct voltage is indicated for your area.



I. CONTROLS



❶ Dust Cover

❷ Dust Cover Hinge

❸ 45 rpm Adaptor and Holder

❹ Lead-in Adjustment Screw Hole
For adjusting the starting point during automatic playback.

❺ Arm Lifter Height Adjustment Screw Hole

❻ Finger Lever

❼ Arm Lifter Control Lever (▼/▼)
For up and down control of the tone arm lifter.

❽ START/CUT Button (◀ / ⏸)
To start and stop playback.

❾ Cartridge

❿ Tone Arm Rest and Lock
Holds and locks the tone arm.

⓫ Plastic Platter

⓬ Rubber mat

⓭ Spindle

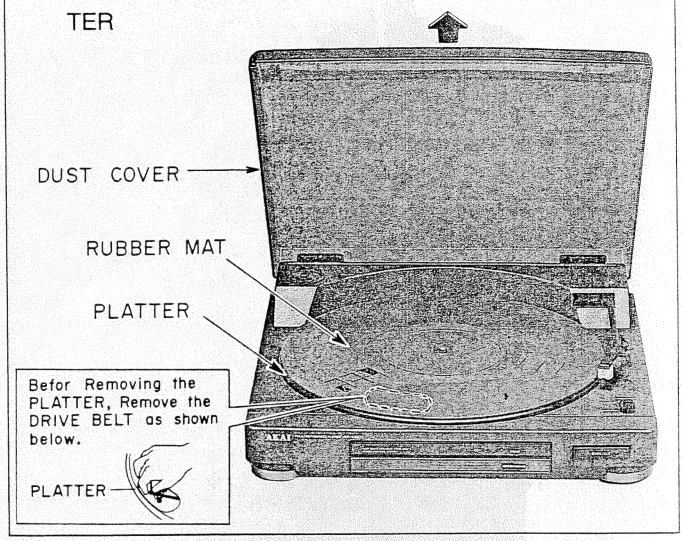
⓮ SPEED Button (33/ 45)
To select the playback speed.

⓯ Record Size Sensing Cams and Slots
Senses the record and its size (30 cm or 17 cm) for automatic playback.

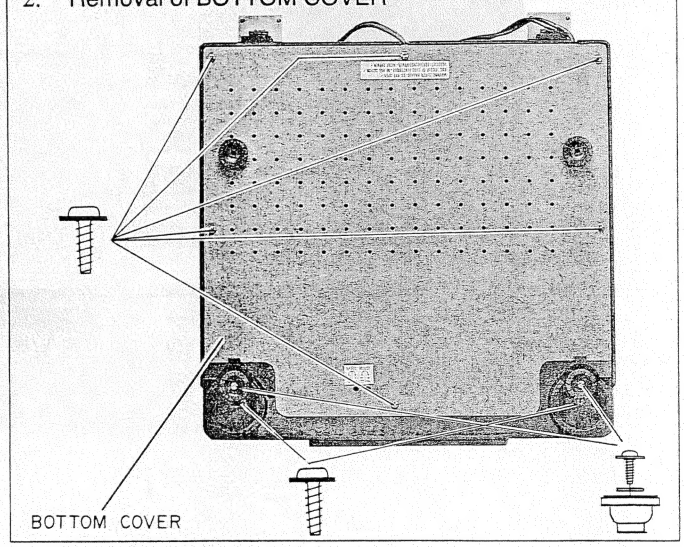
II.DISASSEMBLY

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

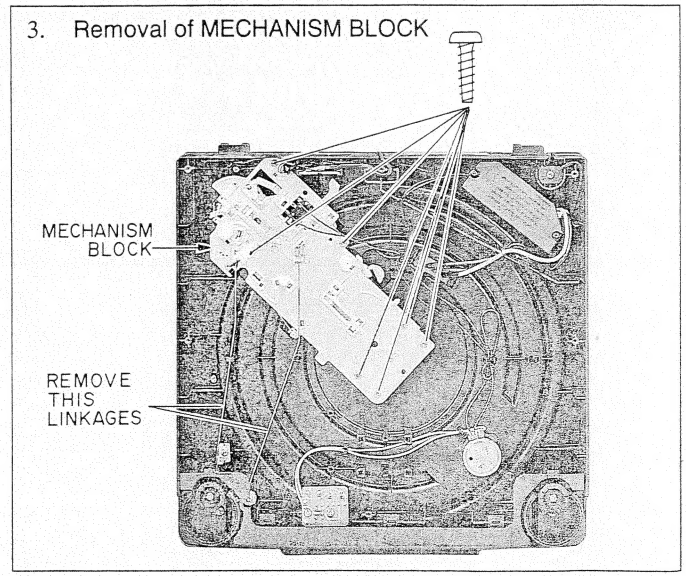
1. Removal of DUST COVER, RUBBER MAT and PLATTER



2. Removal of BOTTOM COVER



3. Removal of MECHANISM BLOCK



III. PRINCIPAL PARTS LOCATION

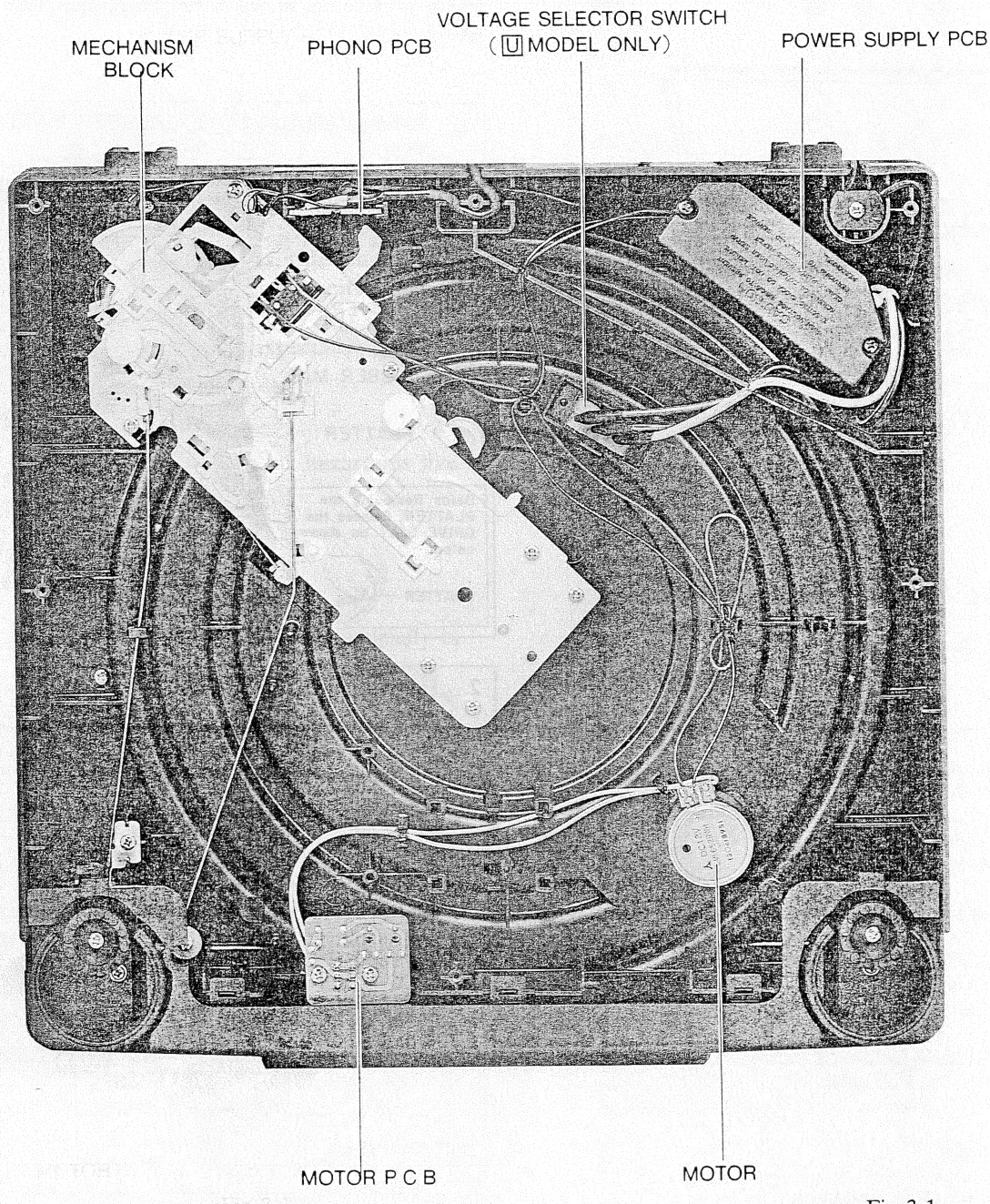


Fig. 3-1

IV. MECHANICAL ADJUSTMENT

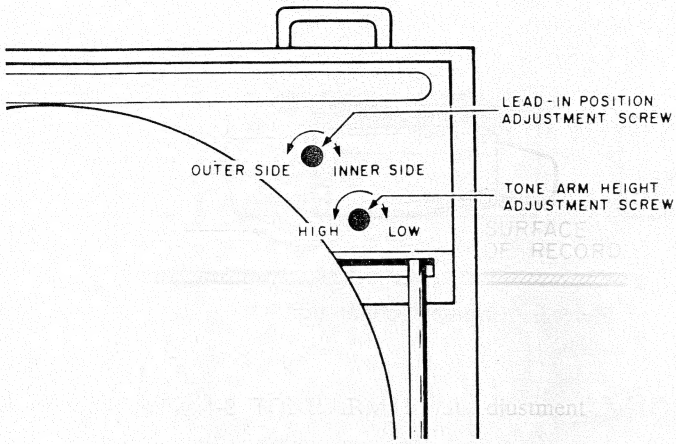


Fig. 4-1 Mechanical adjustment points

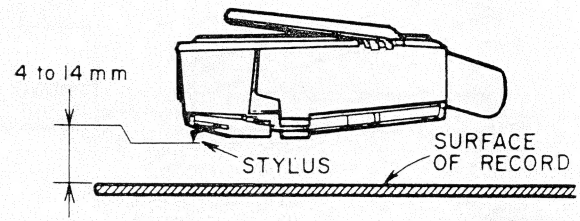


Fig. 4-2 TONE ARM Height Adjustment

4-1. TONE ARM HEIGHT ADJUSTMENT (Refer to Fig. 4-1 and 4-2)

Set the TONE ARM LIFTER to the up position. Turn the TONE ARM HEIGHT SCREW so that the stylus is about 4 to 14 mm above the surface of the record.

Clockwise: Down
Counter clockwise: Up

4-2. LEAD IN POSITION ADJUSTMENT (Refer to Fig. 4-1)

1) Place a 30 cm record on the platter and press START/CUT Button.
2) Confirm the position where the stylus descends.
3) If the lead-in position is incorrect, it can be adjusted by turning the LEAD-IN ADJUSTMENT SCREW clockwise or counter clockwise as shown Fig. 4-1.

Clockwise: To make the stylus discends inner side of record.
Counter clockwise: To make the stylus discends outer side of record.

NOTE: The proper lead-in position for a 30 cm record and lead out position for both 17 cm and 30 cm records will be automatically adjusted by above adjustment.

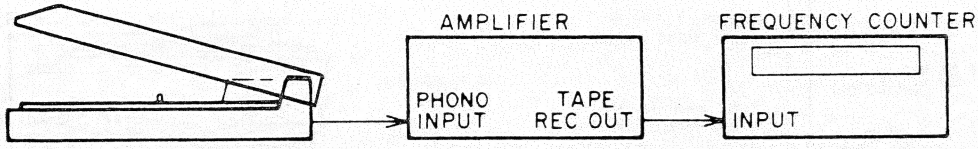


Fig. 5-1 Instruments connection

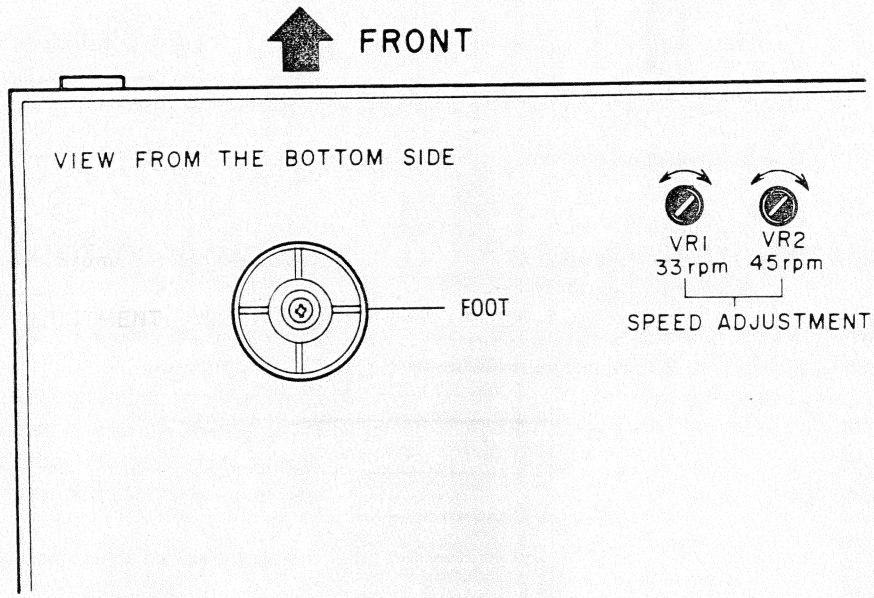


Fig. 5-2 Speed adjustment points

5-1 SPEED ADJUSTMENT

CAUTION: This adjustment should be adjust 33-1/3 rpm position first, then adjust 45 rpm position next.

1) Connect the Frequency counter through phono amplifier as shown Fig. 5-1.
2) Set the SPEED selector to 33-1/3 rpm.
3) Play the test record (1000 Hz, 33-1/3 rpm) and adjust VR1 so that the reading on the Frequency counter is 1000 ± 3 Hz.
4) Set the SPEED selector to 45 rpm.
5) Play the test record (1000 Hz, 45 rpm) and adjust VR2 so that the reading on the Frequency counter is 1000 ± 3 Hz.

VI. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universa Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (W. Germany)
[J] : JPN (Janan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No.listed at right of Part No.

WARNING

⚠(*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠(*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	AX-729409J	STYLUS ATN-3606
2	BB-731621K	MECHANISM AP-M600
3	BM-731643K	MOTOR MMI6S2RWH
4	*BT-731642K	TRANS POW BM-8202UT-1 (U)
5	*BT-726556K	TRANS POW BM8202BS (B)
6	*BT-726555K	TRANS POW BM8202E (E)
7	*ED-511097	D SILICON 1N4001 50/1.0A
8	*EF-365409	FUSE BET T 250V 200MA
9	ES-726553K	SW MICRO AV32029
10	ES-731646K	SW PUSH KPE121-SNA
11	*ES-726566K	SW SLIDE (U)
12	*EW-726550K	AC CORD GTBS-2F (B)
13	*EW-726548K	AC CORD KKP-10 (U)
14	*EW-726549K	AC CORD KKP-419C (E)
15	MB-726532K	BELT DRIVE
16	TP-731636K	TONE ARM ASSY AP-M600

2. POWER SUPPLY P.C BOARD

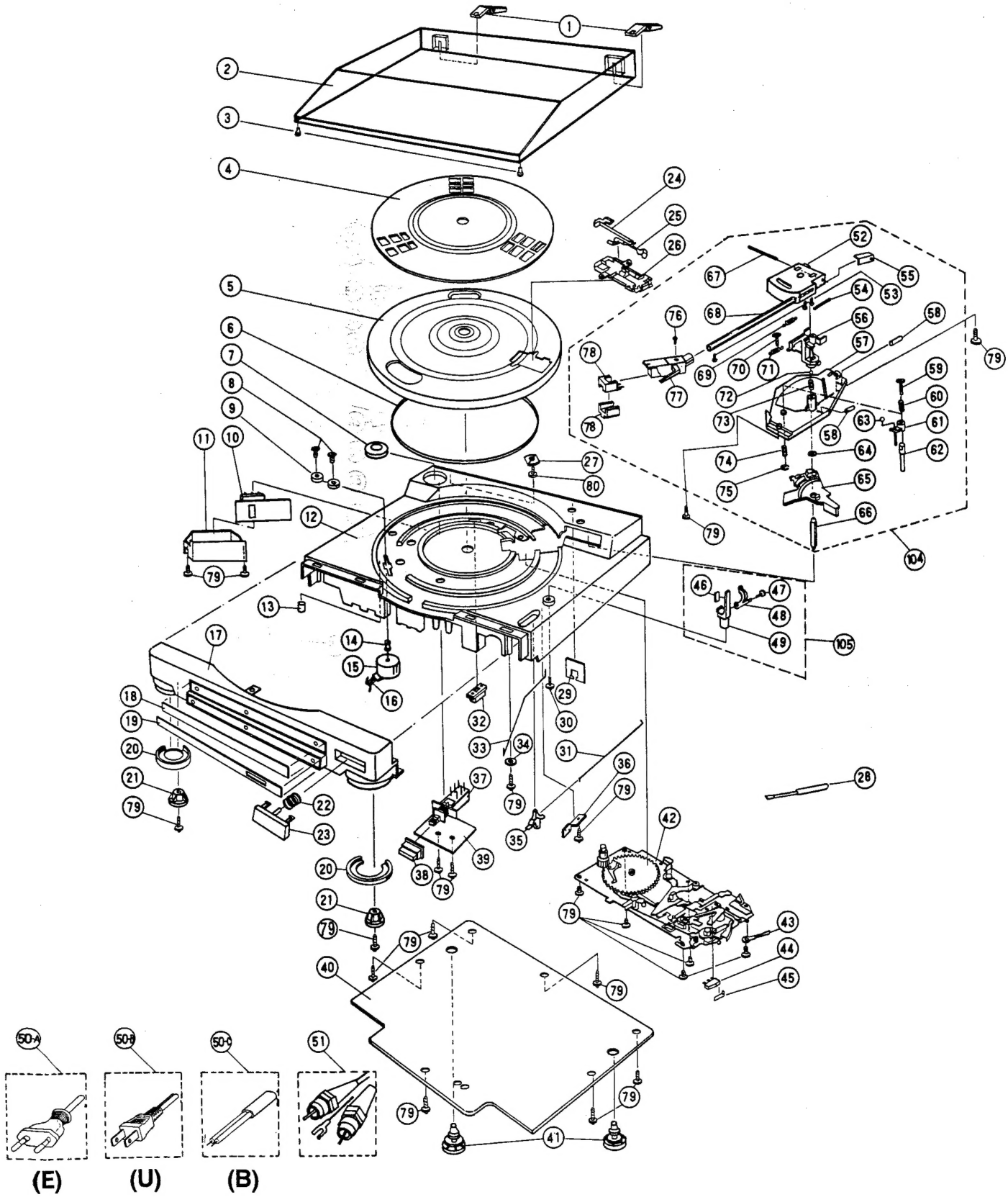
Ref. No.	Part No.	Description
D101	*ED-511097	D SILICON 1N4001 50/1.0A
D102	*ED-511097	D SILICON 1N4001 50/1.0A
D103	*ED-511097	D SILICON 1N4001 50/1.0A
D104	*ED-511097	D SILICON 1N4001 50/1.0A
FUSE	*EF-365409	FUSE BET T 250V 200MA
PT101A	*BT-731642K	TRANS POW BM-8202UT-1 (U)
PT101B	*BT-726555K	TRANS POW BM8202E (E)
PT101C	*BT-726556K	TRANS POW BM8202BS (B)

3. FINAL ASSEMBLY

Ref. No.	Part No.	Description
1	TP-731635K	HINGE ASSY AP-M600
2	SC-731637K	DUST COVER AP-M600
3	SZ-723031K	CUSHION DUST COVER
4	SA-731634K	RUBBER, SHEET
5	TP-731628K	PLATTER AP-M600
6	MB-726532K	BELT DRIVE
14	MR-731644K	PULLEY, MOTOR
15	BM-731643K	MOTOR MMI6S2RWH
17	SP-731638K	FRONT PANEL AP-M600
18	SE-731641K	PLATE, FRONT
19	SE-731640K	PLATE, OPERATION
20	SZ-731639K	HOUSING, FOOT
21	SA-731631K	FOOT, RUBBER (FRONT)
23	SK-731622K	KNOB S/CUT
24	TP-726529K	SENSOR B
25	TP-726528K	SENSOR A
26	TP-726527K	HOLDER SENSOR
28	AX-726396K	DRIVER
31	MZ-731633K	LINK CUEING
32	*ES-726566K	SW SLIDE (U)
33	MZ-731632K	LINK S/CUT
35	ML-726530K	LEVER CUEING
36	ML-731629K	B.K.T CUEING LEVER
37	ES-731646K	SW PUSH KPE121-SNA
38	SK-731623K	KNOB SPEED
41	SA-731630K	FOOT, RUBBER (REAR)
42	BB-731621K	MECHANISM AP-M600
44	ES-726553K	SW MICRO AV32029
50A	*EW-726549K	AC CORD KKP-419C (E)
50B	*EW-726548K	AC CORD KKP-10 (U)
50C	*EW-726550K	AC CORD GTBS-2F (B)
51	EW-731267K	PHONO CORD ASSY AP-M600
59	ZS-726563K	SCREW PH +M2.6X14
60	ZG-731624K	SPRING, ADJUST(E/V)
61	TP-726560K	ARM ELEVATION
62	MS-726561K	SHAFT ELEVATION
63	MZ-731625K	SLIDE, ELEVATION
65	TP-726565K	ARM FEED
78	AX-729409J	STYLUS ATN-3606
104	TP-731636K	TONE ARM ASSY AP-M600
105	TP-726543K	ARM STAND ASSY

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

FINAL ASSEMBLY BLOCK

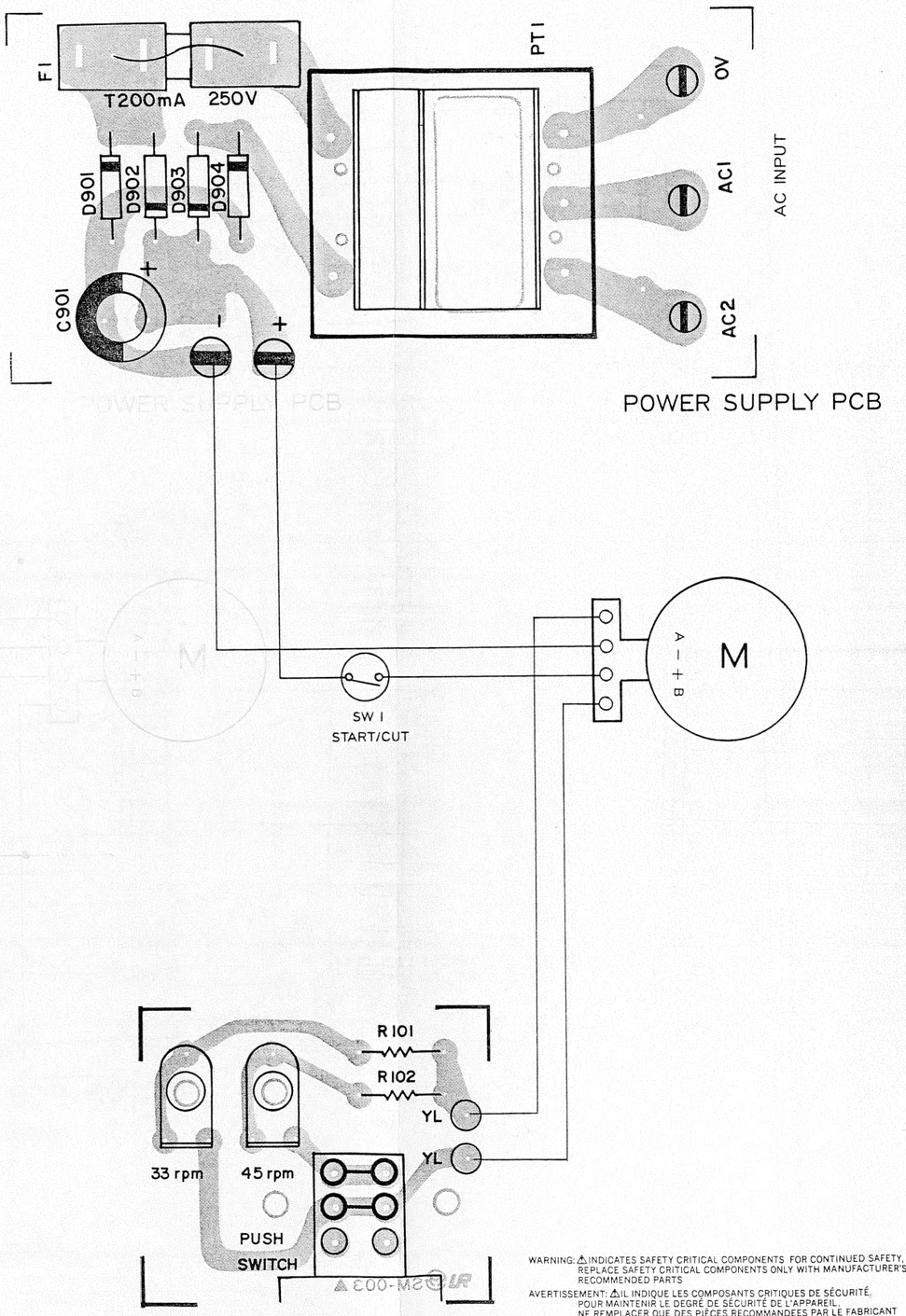


AKAI

MODEL AP-M600

SCHEMATIC DIAGRAM AND PC BOARDS

TABLE OF CONTENTS



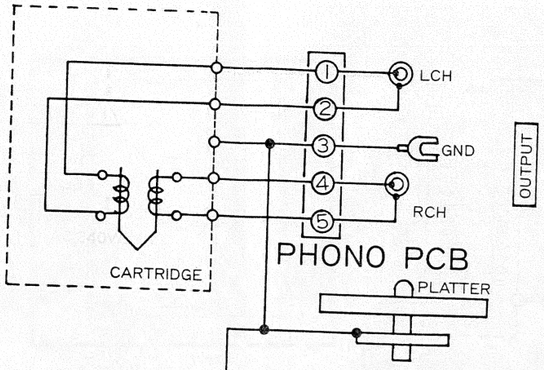
POWER SUPPLY PCB

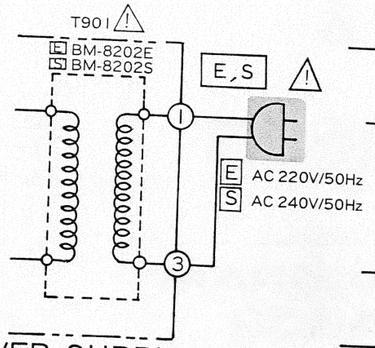
PHONO PCB

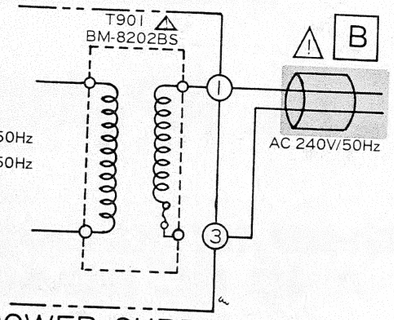
SW PCB

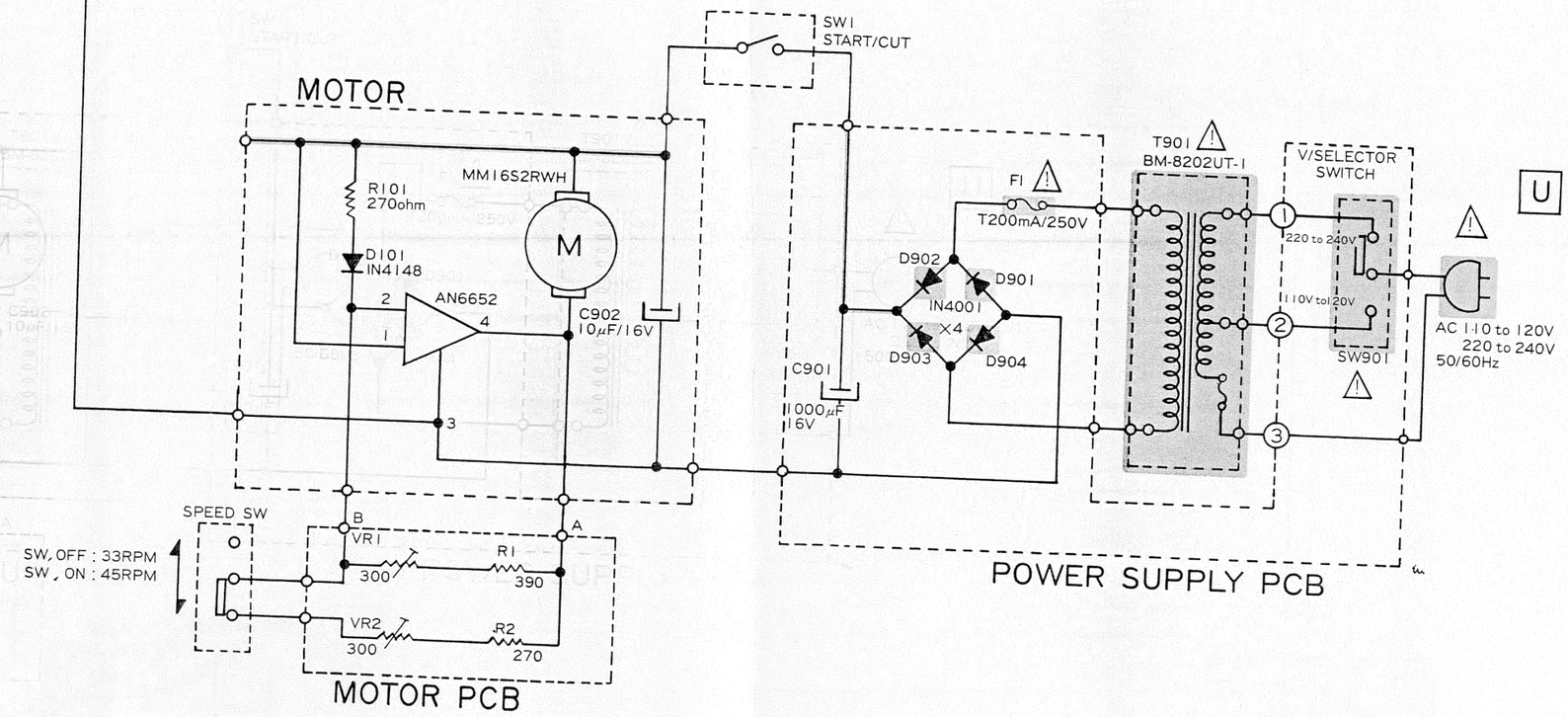
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT









WARNING: ⚠ AND ▭ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER' S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▭, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L' APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (J)

AP–M600
SCHEMATIC DIAGRAM
NO. PA01901M
3

ABBREVIATIONS (TURNTABLE)

ABBREVIATION	EXPLANATION
ADJ	ADJust, or ADJustment
CH	CHannel
FWD	FoWarD
"H"	High
"L"	Low
LED	Light Emitting Diode
MI-COM	MIcro COMputer
PCB	Printed Circuit Board
REV	REVerse
SENS	SENSor, or SENSitivity
SYSCON	SYStem CONtrol
SW	SWitch
T.S	Tracking Sensor
VR	Variable Resistor